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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MEW, KEVIN D	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,957	SAWEY ET AL.	
	Examiner	Art Unit	
	Kevin Mew	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7,9-11,14-18,21,24,25,27-29 and 32-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,7,9-11,14,27-29,32 and 37-39* is/are allowed.

6)☒ Claim(s) *15-18, 21, 24-25, 33-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Final Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 6/30/2008 have been considered. Claims 3-6, 8, 12-13, 19-20, 22-23, 26, 30-31 have been cancelled and claims 37-39 have been newly added by applicant. Claims 1, 2, 7, 9-11, 14-18, 21, 24-25, and 27-29, 32-39 are currently pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 15-18, 21, 24-25, 33-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Black et al. (USP 6,614,796).

Regarding claim 15, Black discloses a data routing apparatus (FCAL switch, Fig. 4) for at least one disk device (for a plurality of NL nodes/disks, col. 1, lines 14-17 and element 108, Fig. 4) associated with a data loop (with a fiber channel arbitrated loop FCAL net), the apparatus comprising:

at least one data loop input (learning half bridge 102, col. 14, lines 9-22) configured to receive data from the fibre channel arbitrated loop (receives data from a FCAL net, col. 14, lines 9-22);

at least one data loop output (learning half bridges 106, col. 14, lines 9-22) configured to send data to the fibre channel arbitrated loop (sends data to a FCAL net, col. 14, lines 9-22);

at least one controller (switch control circuits, elements 36, 38, 40, Fig. 3) configured to process at least one fibre channel primitive flowing in the fibre channel arbitrated loop (processes OPN primitives flowing in) to generate at least one signal (to generate control signals) indicative of whether data from the at least one fibre channel input is to be routed to the at least one fibre channel output (to indicate to the cross-bar switch that the destination node has been located so as to connect the appropriate FCAL networks together to complete the conversation, col. 13, lines 33-42 and col. 15, lines 52-61); and

at least one multiplexer configured to route data to the at least one data loop output, in accordance with the at least one signal, directly from the at least one data loop input or from the at least one disk device (port multiplexer 224 to route the data from a first port of a node/disk to a second port of a second node/disk in accordance with the RRDY primitive signals, col. 34, lines 31-49, col. 27, lines 22-35, col. 1, lines 14-17 and Fig. 7).

Regarding claim 16, Black discloses the apparatus of claim 15 wherein the processing comprises determining whether the at least one disk device is authorized to participate in a conversation currently associated with the data loop (flow back flow control determines if the source node/disk can send data based on whether a RRDY primitive is received at the source node, which prevents from the source node/disk from transmitting until the switch is ready to stream it to destination, col. 15, lines 34-61, col. 1, lines 14-17).

Regarding claim 17, Black discloses the apparatus of claim 15 wherein the processing comprises determining whether the at least one disk device has successfully arbitrated to gain access to the data loop or is communicating with at least one other device that has successfully arbitrated to gain access to the data loop (determining whether another device on the loop has won the arbitration, col. 41, lines 25-38, col. 1, lines 14-17).

Regarding claim 18, Black discloses the apparatus of claim 15 further comprising at least one device input configured to receive data from the at least one disk device (to route the data between a first port and a second port in accordance with the control signals, col. 14, lines 44-52, col. 1, lines 14-17).

Regarding claim 21, Black discloses the apparatus of claim 15 further comprising at least one device output configured to send data from the at least one device (to route the data between a first port and a second port in accordance with the control signals, col. 14, lines 44-52).

Regarding claim 24, Black discloses the apparatus of claim 15 wherein the apparatus comprises an integrated circuit (switch control circuits 36, 38, 40, Fig. 3).

Regarding claim 25, Black discloses the apparatus of claim 15 wherein the apparatus comprises a hub (FCAL switch/intelligent hub, col. 4, lines 48-61, Fig. 4).

Regarding claim 33, Black discloses an apparatus that communicates via a data loop, the apparatus comprising:

at least one processor (switch control circuit, elements 36, 38, 40, Fig. 3) configured to process data, including frame data (frame data, col. 11, lines 1-6), associated with the data loop (processes OPN primitives flowing in, col. 8, lines 42-67);

at least one data loop input (learning half bridge 102, col. 14, lines 9-22) configured to receive data from the data loop (receives data from a FCAL net, col. 14, lines 9-22);

at least one data loop output (learning half bridges 106, col. 14, lines 9-22) configured to send data to the data loop (sends data to a FCAL net, col. 14, lines 9-22);

at least one processor (switch control circuits, elements 36, 38, 40, Fig. 3) configured to process at least a portion of the data from the at least one data loop input (processes OPN primitives flowing in) to generate at least one control signal (to generate control signals) indicative of whether data from the at least one data loop input is to be routed to the at least one processor (to indicate to the cross-bar switch that the destination node has been located so as to connect the appropriate FCAL networks together to complete the conversation, col. 13, lines 33-42 and col. 15, lines 52-61); and

at least one multiplexer configured to route, in accordance with the at least one signal, the data received by the at least data loop input to the at least one data loop output (port multiplexer 224 to route the data between a first port and a second port in accordance with the RRDY primitive signals, col. 34, lines 31-49, col. 27, lines 22-35 and Fig. 7).

Regarding claim 34, Black discloses the apparatus of claim 33 wherein, in accordance with the at least one control signal, the at least one multiplexer routes to the at least one data loop output either the data from the data loop or data from the at least one processor (port multiplexer 224 to route the data between a first port and a second port in accordance with the RRDY primitive signals, col. 34, lines 31-49, col. 27, lines 22-35 and Fig. 7).

Regarding claim 35, Black discloses the apparatus of claim 33 wherein the apparatus comprises a data storage system (routing table, element 127, Fig. 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. in view of Hospodor et al. (USP 6,697,914).

Regarding claim 36, Black discloses all the aspects of claim 33 above, except fails to explicitly show the apparatus of claim 33 wherein the apparatus comprises a disk-based data storage system.

However, Hospodor discloses a switched node for use in a fibre channel arbitrated loop FCAL, which comprises a disk data storage system (col. 3, lines 14-29, col. 4, lines 32-59 and Fig. 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the FCAL switch of Black with the teaching of Hospodor in using a disk data storage system in a switched node such that the FCAL switch (apparatus) of Black will comprise a disk-based data storage system.

The motivation to do so is to use the disk storage to service the data access requests based on the scheduling data received.

Response to Arguments

4. Applicant's arguments filed on 6/30/2008 have been fully considered regarding claims 1, 9, 15, 33 but the arguments regarding claims 15 and 33 are not persuasive.

Claims 1-2, 7, 9-11, 14, 27-29, 32, 37-39 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 1, a port acceleration apparatus for a fibre channel arbitrated loop, the fibre channel arbitrated loop coupling a plurality of disks, the apparatus comprising:

"a first multiplexer configured to route, in accordance with the plurality of states, date from the at least one fibre channel input or a current fill words to the at least one device output; and

a second multiplexer configured to route, in accordance with the plurality of states, data from the at least one fibre channel input, data from the at least one device input, or data from an arbitration generator to the at least one fibre channel output."

In claim 9, a method for accelerating traffic flow in a fibre channel arbitrated loop that connects a plurality of devices including at least one disk, the method comprising:

"routing, in accordance with the state determination, the data received from the fibre channel arbitrated loop; routing, in accordance with the state determination, the data received from the at least one disk; routing, in accordance with the state determination, a current fill word to the at least one disk; and routing, in accordance with the state determination, data from an arbitration generator to the fibre channel arbitrated loop."

Applicant argued on page 4, paragraph 1 of the Remarks that Black does not disclose "at least one multiplexer configured to route data to the at least one data loop output, in accordance with the at least one signal, directly from the at least one data loop input or from the at least on one disk space," examiner respectfully disagrees. It is noted that Black discloses a port multiplexer 224 to route the data from a first port of a node/disk (from the at least one data loop input) to a second port of a second node/disk (to the at least one date loop output) in accordance with RRDY primitive signals (in accordance with at least one signal, col. 34, lines 31-49, col. 27, lines 22-35, col. 1, lines 14-17 and Fig. 7), which reads on "at least one multiplexer configured to route data to the at least one data loop output, in accordance with the at least one signal, directly from the at least one data loop input or from the at least one disk device" as recited in claim 15.

Applicant argued on page 4, paragraph 3 of the Remarks that Black does not disclose "at least one processor configured to process data, including frame data, associated with the data loop," examiner respectfully disagrees. It is noted that Black discloses switch control circuit (at least one processor, elements 36, 38, 40, Fig. 3) processes OPN primitives flowing in (configured to process data associated with the data loop, col. 8, lines 42-67), including frame data (including frame data, col. 11, lines 1-6), which reads on "at least one processor configured to process data, including frame data, associated with the data loop" as recited in claim 33.

In light of the foregoing reasons, claims 15-18, 21, 24-25, 33-35 stand rejected under 35 U.S.C. 102(e) as being anticipated by Black et al. (USP 6,614,796) and claim 36 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. in view of Hospodor et al. (USP 6,697,914).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham, can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9/29/08